Appln. No.: 09/827,942
Amendment Dated June 9, 2008
Reply to Office Action of April 8, 2008

MICR-109US

Remarks/Arguments:

An interview was conducted between Examiner Yogesh Aggarwal and Applicant's representative on Thursday May 29, 2008. In the interview, Mr. Aggarwal and Applicant's representative agreed that amending the independent claims as provided above would overcome the substantive rejections thereof. Arguments based on the agreed upon amendments follow.

Claims 1-3, 6, 9, 10, 16, 17 and 21 were rejected under 35 U.S.C. § 103(a) as obvious over Dobusch et al. (U.S. Patent No. 6,850,276), Gowda et al. (U.S. Patent No. 6,275,259) and Yiannoulos (U.S. Patent No. 5,982,318). Claims 4, 5, 8, 11-14, 18 and 19 were rejected under 35 U.S.C. § 103(a) as obvious over Dobusch, Gowda, Yiannoulos and Kim (U.S. Patent No. 6,587,144). Claims 7, 15 and 20 were rejected under 35 U.S.C. § 103(a) as obvious over Dobusch, Gowda, Yiannoulos and Embler (U.S. Patent No. 6,654,054). Applicant respectfully requests reconsideration. In particular, neither Dobusch, nor Gowda, nor Yiannoulos, nor Kim, nor Embler, nor their combination, disclose or suggest:

> ...digitizing an analog signal of a current pixel of the multicolor pixel array, which is separated from the previously processed pixel <u>by a same predetermined number of pixels in the multicolor pixel array</u>...,

as recited in independent claim 1,

> ...an analog-to-digital converter...configured to digitize an analog signal of a current pixel of the multicolor pixel array, which is separated from the previously processed pixel <u>by a same predetermined number of pixels in the multicolor pixel array</u>...,

as recited in independent claim 9, or

> ...an analog-to-digital converter...configured to digitize an analog signal of a current photosensitive pixel of the sensor array, which is separated from the previously processed pixel <u>by a same predetermined number of pixels in the multicolor pixel array</u>...,

as recited in independent claim 17. This feature is found, for example, in the originally filed application at page 7, line 16 through page 8, line 24. No new matter has been added.

Dobusch discloses a system for detecting brightness signals from a series of pixels. As shown in Fig. 1, the system uses a working value determined for a previous pixel as the gain factor for processing the <u>next successive pixel</u>. (See column 2, lines 42-62) (stating "[t]he brightness signals SO(x) of the individual sensor elements P(x) are read out in this process <u>one after the other</u>" and "<u>[f]or all other following sensor elements</u>, the working value of the <u>preceding sensor element</u> is used as maximum gain factor..." (emphases added)). Because Dobusch's system operates on <u>successive</u> pixels, Dobusch does not disclose or suggest

digitizing a signal of a current pixel in the array which is <u>separated from the previously</u> <u>processed pixel "by a same predetermined number of pixels</u>," as required by claims 1, 9 and 17. To the contrary, in Dobusch, the previously processed pixel would not be separated from the current pixel by any pixels.

Gowda discloses an automatic gain control circuit. The gain control circuit uses values from a previous frame to operate on the <u>next successive frame</u>. (See column 2, line 47 to column 3, line 10; col. 3, lines 25-27; and FIG. 1). Because Gowda's circuit operates on minimum and maximum values from <u>successive</u> frames, Gowda does not disclose or suggest digitizing a signal of a current pixel in the array which is <u>separated from the previously</u> <u>processed pixel "by a same predetermined number of pixels</u>," as required by claims 1, 9 and 17. As with Dobusch, in Gowda the previously processed pixel would also not be separated from the current pixel by any pixels.

As discussed with the Examiner in the May 29, 2008 interview, Yiannoulos discloses an analog to digital converter providing digital representations of analog signals generated by photosensitive pixels. As shown in FIG. 3, the digital to analog converter includes a ramp generator 20 and an output circuit 34. The ramp generator 20 and a photosensitive pixel 10 are coupled to input terminals of a comparator 30 of the output circuit 34. In operation, an image signal is sampled from the photosensitive pixel 10 and, at the same time, the ramp generator begins providing an output signal and then continues to ramp up its voltage. When the ramp generator's output reaches the level of the signal sampled from the photosensitive pixel 10, the comparator 30 outputs a signal EN which signals a counter 44 of the output circuit 34 to stop counting. The output circuit then outputs the digital word count of the counter 44. See col. 6, lines 19-64.

As shown in FIG. 5 of Yiannoulos, in one embodiment, ramp generators may be provided on the same substrate as the red, green and blue pixels 10. Separate ramp generators are used for processing red pixels, green pixels and blue pixels, respectively. See col. 10, lines 17-44. Applicants asserts that these ramp generations are not "previously proceed pixels, as regard by the claims. Furthermore, while it appears that the red, green and blue pixels 10 may be separated on the substrate from the ramp generators 20, Yiannoulos does not disclose or suggest that a current pixel is separated from a previously processed pixel <u>"by a same</u> <u>predetermined number of pixels</u>" in the pixel array, as required by claims 1, 9 and 17. Indeed, assuming *arguendo* that the ramp generators 20 are previously processed pixels, the ramp generators 20 are not disposed in the pixel array at all.

Kim discloses an analog signal processing apparatus. As shown in Fig. 3, the apparatus includes a correlated double sampling (CDS) circuit 100, an automatic gain control (AGC) circuit 200, an A/D converter 300 and a black level clamp circuit 400. CDS 11 adjusts a DC level of a video signal output from a CCD using a black level as a reference. AGC 200 adjusts the gain of the signal output from CDS 11. A/D 300 converts the signal to a digital image signal. Black level clamp circuit 400 clamps the black level of the signal output from A/D 300 and feeds the clamped black level back to CDS 100. (See column 3, line 39 through column 4, line 24). Kim processes the pixels of a single video signal successively and, so, does not disclose or suggest digitizing a signal of a current pixel in the array which is separated from the previously processed pixel "by a same predetermined number of pixels," as required by claims 1, 9 and 17.

Embler discloses a method and apparatus for canceling noise in an electronic signal. The apparatus relevantly includes a control means, a storage means and a summing circuit. The control means controls timing of a noise signal generated by a source. The storage means stores an anti-noise signal, which is a complement of the noise signal. The summing circuit sums the noise and anti-noise signals together. (See column 6, line 58 through column 7, line 59). Embler does not disclose or suggest digitizing a signal of a current pixel in the array which is separated from the previously processed pixel "by a same predetermined number of pixels," as required by claims 1, 9 and 17.

Accordingly, for the reasons provided above, independent claims 1, 9 and 17 are patentable over Dobusch, Gowda, Yiannoulos, Kim, Embler and any combination thereof.
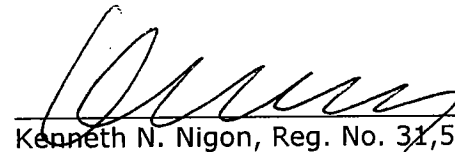
Claims 2-8 include all features of independent claim 1 from which they depend. Claims 10-16 include all features of independent claim 9 from which they depend. Claims 18-21 include all features of independent claim 17 from which they depend. Thus, claims 2-8, 10-16 and 18-21 are also patentable over Dobusch, Gowda, Yiannoulos, Kim, Embler, and any combination thereof, for the reasons provided above with respect to independent claims 1, 9 and 17.

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In view of the foregoing amendments and remarks, Applicant requests that the Examiner reconsider and withdraw the rejections of claims 1-21.

Respectfully submitted,

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